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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,955	04/17/2000	James Xanthos	2506-005	1674

7590 02/13/2004

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EXAMINER	
GARY, ERIKA A	

ART UNIT	PAPER NUMBER
2681	13

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,955	XANTHOS ET AL.	
	Examiner	Art Unit	
	Erika A. Gary	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-162* is/are pending in the application.

4a) Of the above claim(s) *141-143 and 156-162* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-140, 144-155* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 127 recites the limitation "the digital communication paths" in line 3 of page 22. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 5-7, 9-11, 12-24, 28-38, 144-146, and 153 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen et al., US Patent Number 5,987,306 (hereinafter Nilsen) in view of Feder et al., US Patent Number 6,522,881 (hereinafter Feder).

As to claim 1, Nilsen discloses a method for measuring data quality of service in a traffic wireless network (see abstract) comprising the steps of: sending command information related to data quality of service measurements (see col. 4 lines 59-63); performing measurements to produce measurement information in relation to said command information (see col. 12 line 22 through col. 13 line 20); and receiving

response information in relation to said measurement information and said command information (see col. 5 line 36 through col. 6 line 4, especially col. 5 lines 46-48).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

As to claim 2 and 6, Nilsen further discloses that said sending and receiving steps use a wireless link (see the two-way link labeled ARFCN in Fig. 1).

As to claims 3 and 7, Nilsen fails to explicitly describe using a CDPD link as part of the control link. However, the referencing of CDPD in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation

of such, is construed as an admission that CDPD and the use of such was well known in the art at the time the invention was.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control link modem to use a CDPD link for the purpose of conforming to an industry standard, thereby broadening the applicability of the device.

As to claims 5 and 9, Nilsen further discloses that said sending step uses a wired link (see col. 4 lines 59-63, see wired link between FE and FTU in Fig. 1).

As to claims 10, 12-16, 144-146, and153 Nilsen discloses that the measurements performed by the remote units are not limited to those explicitly listed (see col. 2 lines 17-22 and col. 12 lines 22-24 wherein Nilsen uses the word "comprise").

Moreover, the referencing of measurements related to: circuit switched data, SMS messages, wireless Internet access, wireless Internet transactions, e-commerce transactions, push data, PDA traffic, GSM related information, CDPD traffic, or private data network traffic/access in the instant application (see page 56 lines 5-22), absent details of such or implementation of such, is construed as an admission that making such measurements was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to include these types of measurements. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system to perform measurements related to commonly known messages.

As to claim 11, Feder discloses producing measurement information related to packet data [col. 3: lines 46-50].

As to claims 17-20, Nilsen further discloses that said performing step produces measurement information related to latency (see col. 12 lines 40-42), Layer 3 network information (see col. 12 lines 43-47), RF information (see col. 12 lines 30-39), and call connection information (see col. 12 lines 25-29).

As to claims 21-24 Nilsen discloses that the system may be used for analogous networks (see col. 18 lines 41-45). However, Nilsen fails to explicitly disclose using the system in iDEN, CDMA, TDMA, or AMPS networks.

The referencing of DEN, CDMA, TDMA and AMPS in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to work in these types of networks. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system for use in industry standard networks.

As to claim 28, Nilsen further discloses the step of scheduling missions related to said command information (see col. 10 line 65 through col. 11 line 52).

As to claim 29, Nilsen further discloses the step of generating test traffic related to said message information (see col. 12 lines 43-47, wherein layer-1 and layer-3 messages constitute test traffic).

As to claims 30-31, Nilsen further discloses the step of storing said control information (see col. 12 lines 9-13) and said measurement information (see col. 6 lines 5-12) at a remote unit (MTU in Fig. 1).

As to claim 32, Nilsen further discloses the step of pre-processing said measurement information at a remote unit (MTU) (this is inherent because the MTU necessarily pre-processes the information in order to prepare it for wireless transmission).

As to claim 33, Nilsen further discloses the step of post-processing said measurement information at a back end processor (see col. 14 lines 8-18).

As to claim 34, Nilsen further discloses the step of organizing remote unit data, related to said command information at a back end processor (see col. 14 lines 20-46).

As to claim 35, Nilsen further discloses that the sending step includes sending said command information from a back end processor to at least one of a plurality of remote units (see col. 4 lines 59-63).

As to claim 36, Nilsen further discloses that said performing step includes performing said measurements using one of a plurality of remote units (MTU) (see col. 12 line 22 through col. 13 line 20).

As to claim 37, Nilsen further discloses that the receiving step includes receiving said response information at a back end processor (comprises FE and CeNAS in Fig. 1) from at least one of a plurality of remote units (see col. 13 lines 46-52).

As to claim 38, Nilsen discloses a measuring system for measuring data quality of service on at least one traffic wireless network, comprising: a back end processor (FE, DBMS, and CeNAS in Fig. 1) for controlling the measuring system (see col. 4 lines 59-63); a plurality of remote units (MTU in Fig. 1) in communication with said back end processor via a control link (labeled ARFCN in Fig. 1), for performing measurements on the at least one traffic wireless network (see col. 12 line 22 through col. 13 line 20).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the

communication path or a node in one of the networks to ensure necessary quality of service.

5. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen and Feder in view of Kikinis (U.S. Patent Application Publication Number 2002/0015398).

As to claims 4 and 8, Nilsen discloses that said sending and receiving steps use a wireless link and that the back end processor is part of a LAN (see col. 8 lines 10-20). However, Nilsen and Feder fails to explicitly recite that said remote unit comprises a wireless LAN device for communicating with said back end processor.

In an analogous art, Kikinis discloses a system for measuring data quality of service (see abstract) wherein a remote unit (100-600 in Fig. 1) comprises a wireless LAN device for communicating in a network (see paragraph 77).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote unit to include a wireless LAN device for communicating with said back end processor. One of ordinary skill in the art would have been motivated to make this modification in order to broaden the applicability of Nilsen's system to include wireless LAN's.

6. Claims 25, 26, 80, and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claims 25, 26, 80, and 81, Nilsen discloses a method (and apparatus) for measuring data quality of service in a traffic wireless network (see abstract) comprising the steps of: sending command information related to data quality of service measurements (see col. 4 lines 59-63); performing measurements to produce measurement information in relation to said command information (see col. 12 line 22 through col. 13 line 20); and receiving response information in relation to said measurement information and said command information (see col. 5 line 36 through col. 6 line 4, especially col. 5 lines 46-48).

What Nilsen does not specifically disclose is monitoring and benchmarking in relation to a WAP gateway. However, Nilsen teaches a TCP/IP connection. Therefore the Examiner takes Official Notice that it would have been obvious to further monitor and/or perform benchmarking in a relation to a WAP gateway as WAP gateways are well known in the art to be included in Internet enabled networks.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 27, Nilsen discloses a method for measuring data quality of service in a traffic wireless network (see abstract) comprising the steps of: sending command information related to data quality of service measurements (see col. 4 lines 59-63); performing measurements to produce measurement information in relation to said command information (see col. 12 line 22 through col. 13 line 20); and receiving response information in relation to said measurement information and said command information (see col. 5 line 36 through col. 6 line 4, especially col. 5 lines 46-48).

Nilsen does not specifically teach accessing a portal from the Internet for said command and measurement information. However, Nilsen discloses that "said front end (FE) may be called up from any work station in the connected data network" (see col. 4 lines 63-65). Nilsen also teaches a TCP/IP connection. Therefore the Examiner takes Official Notice that it would have been obvious at the time of the invention to include a portal from the Internet to allow ease of use in accessing the command or measurement information.

8. Claims 39, 41-45, 47-51, 53, 55-73, 76, 78, 79, 83, 85-87, 147, 148, and 154 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 42, Nilsen discloses a measuring system for measuring data quality of service on at least one traffic wireless network, comprising: a back end processor (FE, DBMS, and CeNAS in Fig. 1) for controlling the measuring system (see col. 4 lines 59-63); a plurality of remote units (MTU in Fig. 1) in communication with said back end processor via a control link (labeled ARFCN in Fig. 1), for performing measurements on the at least one traffic wireless network (see col. 12 line 22 through col. 13 line 20).

What Nilsen does not specifically disclose is including a portal for allowing customer access through the Internet. However, Nilsen discloses that "said front end (FE) may be called up from any work station in the connected data network" (see col. 4 lines 63-65). Nilsen also teaches a TCP/IP connection. Therefore the Examiner takes Official Notice that it would have been obvious at the time of the invention to include a

portal from the Internet to allow ease of use in accessing the command or measurement information.

As to claim 39, Nilsen further discloses that said back end processor includes a fleet management element (FE) for managing said plurality of remote units (see col. 4 lines 52-58).

As to claim 41, Nilsen further discloses that said back end processor includes a post processor (result collector) for post processing data collected from said plurality of remote units (see col. 14 lines 3-18).

As to claims 44-45, Nilsen further discloses that each of said plurality of remote units includes a control unit, which is a portable computer (micro computer) for controlling said remote unit (see col. 6 lines 5-21).

As to claims 47-48, Nilsen further discloses that each of said plurality of remote units includes a location unit, which is a GPS receiver, for providing position information (see col. 6 lines 13-15).

As to claim 49, Nilsen further discloses that each of said plurality of remote units includes a control link modem for communicating via said control link with said back end processor (see col. 8 lines 19-20).

As to claim 50 Nilsen fails to explicitly describe using a CDPD link as part of the control link. However, the referencing of CDPD in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that CDPD and the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control link modem to use a CDPD link for the purpose of conforming to an industry standard, thereby broadening the applicability of the device.

As to claims 51, 57, 79, Nilsen fails to explicitly recite the use of software-defined radio in the control link modem, traffic link modem or RF scanner. The referencing of software-defined radio in the instant application (see page 30 lines 1721, page 35 lines 7-9), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem, control link modem or RF scanner to include software-defined radio. One of ordinary skill in the art would have been motivated to make this modification because software-defined radio facilitates future modifications and enhancements.

As to claim 53, 55, 56, and 61 Nilsen further discloses that each of said plurality of remote units includes at least one traffic modem (test mobile) for performing said measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15 and see col. 21 lines 19-30, also see col. 20 lines 5-10 wherein Nilsen discloses that said test mobile is an Orbitel 901 cellular phone commonly known to be GSM compatible). Further as to claim 55, a test mobile is considered equivalent to a modem module.

As to claims 58-60, Nilsen discloses everything as applied to claims 1, 38 and 89 above. In addition, Nilsen discloses that the system may be used for analogous network3 (see col. 18 lines 41-45). However, Nilsen fails to explicitly disclose using the system in iDEN, CDMA, TDMA, or AMPS networks.

The referencing of DEN, CDMA, TDMA and AMPS in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to work in these types of networks. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system for use in industry standard networks.

As to claims 62, 64-68, and 154, Nilsen discloses everything as applied to claims 1, 38 and 89 above. In addition, Nilsen discloses that the measurements performed by the remote units are not limited to those explicitly listed (see col. 2 lines 17-22 and col. 12 lines 22-24 wherein Nilsen uses the word "comprise").

Moreover, the referencing of measurements related to: circuit switched data, SMS messages, wireless Internet access, wireless Internet transactions, e-commerce transactions, push data, PDA traffic, GSM related information, CDPD traffic, or private data network traffic/access in the instant application (see page 56 lines 5-22), absent

details of such or implementation of such, is construed as an admission that making such measurements was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to include these types of measurements. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system to perform measurements related to commonly known messages.

As to claim 63, Feder discloses producing measurement information related to packet data [col. 3: lines 46-50].

As to claims 69-73, Nilsen further discloses that said measurements include latency (see col. 12 lines 40-42), data reliability (equivalent to bit error rate - see col. 2 lines 17-22) Layer 3 network information (see col. 12 lines 43-47), RF information (see col. 12 lines 30-39), and call connection information (see col. 12 lines 25-29).

As to claim 76, Nilsen further discloses that each of said plurality of remote units (MTU) includes an internal storage for storing at least one of said measurements (see col. 6 lines 5-12). Although Nilsen refers to this storage as being internal, it is considered to be external to essential components of the remote unit, and therefore the Office also considers it to be external storage.

However, Nilsen fails to explicitly recite using external storage for such purposes.

As to claim 78, Nilsen further discloses that each of said plurality of remote units (MTU) includes an RF scanner for measuring the at least one traffic wireless network (see col. 12 lines 30-35).

As to claim 83, Nilsen further discloses that at least one of said plurality of remote units is mobile (see col. 3 lines 50-j3).

As to claim 85-87, Nilsen further discloses that said control link is wired (see col. 4 lines 59-63, see wired link between FE and FTU in Fig. 1) and wireless (see the two-way link labeled ARFCN in Fig. 1).

As to claim147, Nilsen discloses everything as applied to claims 53 and 89 above. However, Nilsen fails to explicitly recite the use of a CDPD modem as the at least one traffic modem.

The referencing of a CDPD modem in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem to be a CDPD modem. One of ordinary skill in the art would have been motivated to make this modification for the purpose of conforming to an industry standard, thereby broadening the applicability of the device.

As to claim 148, Nilsen fails to explicitly recite the use of a PDA modem as the at least one traffic modem.

The referencing of a PDA modem in the instant application (see page 56 line 22), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem to be a PDA modem. One of ordinary skill in the art would have been motivated to make this modification for the purpose of broadening the applicability of the remote unit to include PDA devices.

9. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 54, Nilsen discloses a measuring system for measuring data quality of service on at least one traffic wireless network, comprising: a back end processor (FE, DBMS, and CeNAS in Fig. 1) for controlling the measuring system (see col. 4 lines 59-63); a plurality of remote units (MTU in Fig. 1) in communication with said back end processor via a control link (labeled ARFCN in Fig. 1), for performing measurements on the at least one traffic wireless network (see col. 12 line 22 through col. 13 line 20). Nilsen further discloses that each of said plurality of remote units includes at least one traffic modem (test mobile) for performing said measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15 and see col. 21 lines 19-30, also see col. 20 lines 5-10 wherein Nilsen discloses that said test mobile is an Orbitel 901 cellular phone commonly known to be GSM compatible)

Nilsen fails to specially disclose that the respective traffic modem of said at least one traffic modem is said control link modem. However, the Examiner takes Official Notice that it would have been obvious to one of ordinary skill in the art to perform this modification as it is well known to reduce the number of components in a system by having one component perform multiple functions.

10. Claim 88 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 88, Nilsen discloses Nilsen discloses a measuring system for measuring data quality of service on at least one traffic wireless network, comprising: a back end processor (FE, DBMS, and CeNAS in Fig. 1) for controlling the measuring system (see col. 4 lines 59-63); a plurality of remote units (MTU in Fig. 1) in communication with said back end processor via a control link (labeled ARFCN in Fig. 1), for performing measurements on the at least one traffic wireless network (see col. 12 line 22 through col. 13 line 20).

What Nilsen does not specifically disclose is that the control link uses a wireless standard in relation to a geographic area of the associated remote unit. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a wireless standard in relation to a geographic area of the associated remote unit in order to communicate using the appropriate protocol.

11. Claims 89, 90, 92-96, 98-116, 118, 120, 121, 125, 149-152 and 155 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 89 and 92, Nilsen discloses a remote unit (MTU) which is one of a plurality of remote units that communicates with a back end processor (FE, DBMS, and CeNAS in Fig. 1), for measuring data quality of service on at least one traffic wireless network, comprising: a control unit (micro computer) for controlling said remote unit; a location unit (GPS receiver) for providing position information; a control link modem

(built in modem) for communicating via a control link with the back end processor; and at least one traffic modem (test mobile) for performing measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15, and col. 19 line 63 through col. 20 line 15).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

As to claim 90, Nilsen further discloses that the control unit is a portable computer (see col. 6 lines 18-21 wherein Nilsen discloses that it is designed to be transported by a vessel/vehicle).

As to claim 93, Nilsen fails to explicitly describe using a CDPD link as part of the control link. However, the referencing of CDPD in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that CDPD and the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control link modem to use a CDPD link for the purpose of conforming to an industry standard, thereby broadening the applicability of the device.

As to claims 94, 100, and 121, Nilsen fails to explicitly recite the use of software-defined radio in the control link modem, traffic link modem or RF scanner. The referencing of software-defined radio in the instant application (see page 30 lines 1721, page 35 lines 7-9), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem, control link modem or RF scanner to include software-defined radio. One of ordinary skill in the art would have been motivated to make this modification because software-defined radio facilitates future modifications and enhancements.

As to claims 96, 99, and 104, Nilsen further discloses that each traffic modem of said at least one traffic modem performs measurements on a respective traffic wireless network of that at least one traffic wireless network (see col. 6 lines 13-15 and see col.

21 lines 19-30, also see col. 20 lines 5-10 wherein Nilsen discloses that said test mobile is an Orbitel 901 cellular phone commonly known to be GSN compatible).

As to claim 98, Nilsen further discloses that each of said plurality of remote units includes at least one traffic modem (test mobile) for performing said measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15 and see col. 21 lines 19-30, also see col. 20 lines 5-10 wherein Nilsen discloses that said test mobile is an Orbitel 901 cellular phone commonly known to be GSM compatible). Further as to claim 98, a test mobile is considered equivalent to a modem module.

As to claims 101-103 Nilsen discloses everything as applied to claims 1, 38 and 89 above. In addition, Nilsen discloses that the system may be used for analogous networks (see col. 18 lines 41-45). However, Nilsen fails to explicitly disclose using the system in iDEN, CDMA, TDMA, or AMPS networks.

The referencing of DEN, CDMA, TDMA and AMPS in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to work in these types of networks. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system for use in industry standard networks.

As to claim 106, Feder discloses producing measurement information related to packet data [col. 3: lines 46-50].

As to claims 112-116, Nilsen further discloses that said measurements include latency measurements (see col. 12 lines 40-42), data reliability (equivalent to bit error rate - see col. 2 lines 17-22) Layer 3 network information (see col. 12 lines 43-47), RF information (see col. 12 lines 30-39), and call connection information (see col. 12 lines 25-29).

As to claim 118, Nilsen further discloses that the remote units (MTU) further comprise an internal storage for storing at least one of said measurements (see col. 6 lines 5-12). Although Nilsen refers to this storage as being internal, it is considered to be external to essential components of the remote unit, and therefore the Office also considers it to be external storage.

As to claim 120, Nilsen further discloses that the remote unit (MTU) further comprises an RF scanner for measuring the at least one traffic wireless network (see col. 12 lines 30-35).

As to claim 123, Nilsen further discloses that said remote unit is mobile (see col. 3 lines 50-53).

As to claim 124-125, Nilsen further discloses that said control link is wired (see col. 4 lines 59-63, see wired link between FE and FTU in Fig. 1) and wireless (see the two-way link labeled ARFCN in Fig. 1).

As to claim 150, Nilsen discloses everything as applied to claims 53 and 89 above. However, Nilsen fails to explicitly recite the use of a CDPD modem as the at least one traffic modem.

The referencing of a CDPD modem in the instant application (see page 20 lines 21-22, page 31 lines 4-5, 19-20), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem to be a CDPD modem. One of ordinary skill in the art would have been motivated to make this modification for the purpose of conforming to an industry standard, thereby broadening the applicability of the device.

As to claims 105, 107-111, 151, 152, and 155, Nilsen discloses everything as applied to claims 1, 38 and 89 above. In addition, Nilsen discloses that the measurements performed by the remote units are not limited to those explicitly listed (see col. 2 lines 17-22 and col. 12 lines 22-24 wherein Nilsen uses the word "comprise").

Moreover, the referencing of measurements related to: circuit switched data, SMS messages, wireless Internet access, wireless Internet transactions, e-commerce transactions, push data, PDA traffic, GSM related information, CDPD traffic, or private data network traffic/access in the instant application (see page 56 lines 5-22), absent

details of such or implementation of such, is construed as an admission that making such measurements was well known in the art at the time the invention was made.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's system to include these types of measurements. One of ordinary skill in the art would have been motivated to make this modification because it broadens the applicability of the system to perform measurements related to commonly known messages.

As to claim 149, Nilsen fails to explicitly recite the use of a PDA modem as the at least one traffic modem. The referencing of a PDA modem in the instant application (see page 56 line 22), absent details of such or implementation of such, is construed as an admission that the use of such was well known in the art at the time the invention was made. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's traffic modem to be a PDA modem. One of ordinary skill in the art would have been motivated to make this modification for the purpose of broadening the applicability of the remote unit to include PDA devices.

12. Claim 97 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 97, Nilsen discloses a remote unit (MTU) which is one of a plurality of remote units that communicates with a back end processor (FE, DBMS, and CeNAS in Fig. 1), for measuring data quality of service on at least one traffic wireless network, comprising: a control unit (micro computer) for controlling said remote unit; a location unit (GPS receiver) for providing position information; a control link modem (built in

modem) for communicating via a control link with the back end processor; and at least one traffic modem (test mobile) for performing measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15, and col. 19 line 63 through col. 20 line 15).

Nilsen fails to specially disclose that the respective traffic modem of said at least one traffic modem is said control link modem. However, the Examiner takes Official Notice that it would have been obvious to one of ordinary skill in the art to perform this modification as it is well known to reduce the number of components in a system by having one component perform multiple functions.

13. Claim 126 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen.

As to claim 126, Nilsen discloses a remote unit (MTU) which is one of a plurality of remote units that communicates with a back end processor (FE, DBMS, and CeNAS in Fig. 1), for measuring data quality of service on at least one traffic wireless network, comprising: a control unit (micro computer) for controlling said remote unit; a location unit (GPS receiver) for providing position information; a control link modem (built in modem) for communicating via a control link with the back end processor; and at least one traffic modem (test mobile) for performing measurements on a respective traffic wireless network of the at least one traffic wireless network (see col. 6 lines 13-15, and col. 19 line 63 through col. 20 line 15).

What Nilsen does not specifically disclose is that the control link uses a wireless standard in relation to a geographic area of the associated remote unit. However, it

would have been obvious to one of ordinary skill in the art at the time of the invention to use a wireless standard in relation to a geographic area of the associated remote unit in order to communicate using the appropriate protocol.

14. Claim 127 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 127, Nilsen disclose a method for measuring data quality of service in a traffic wireless network using a back end processor (FE, DBMS, CeNAS) and plural remote units (MTU) (see abstract and Fig. 1) the method comprising: sending command information from the back end processor to at least two of the plural remote units, the command information being related to data quality of service measurements (see col. 4 lines 59-63); performing measurements on the traffic wireless network, using the at least two of the plural remote units, to produce measurement information in relation to said command information (see col. 12 line 22 through col. 13 line 20); and receiving response information at the back end processor from the at least two of the plural remote units, said response information being in relation to said measurement information and said command information (see col. 5 line 36 through col. 6 line 4, especially col. 5 lines 46-48); wherein said response information provides a measure of data quality of service in the traffic wireless network (see col. 2 lines 5-22).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

15. Claim 128 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 128, Nilsen discloses a method for measuring data quality of service in a traffic wireless network (see abstract) the method comprising: receiving command information related to data quality of service measurements sent from a back end processor (see col. 5 lines 60-64); performing one or more measurements of performance in the traffic wireless network to produce measurement information in relation to said command information (see col. 12 line 22 through col. 13 line 20); and sending response information in relation to said measurement information and said

command information to the back end processor (see col. 6 lines 4, see col. 13 lines 46 -52).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

16. Claim 129 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 129, Nilsen discloses a method for producing a measurement result that is indicative of data quality of service in a traffic wireless network (see abstract), the method comprising: sending command information to plural remote units, said

command information being related to data quality of service measurements (see col. 4 lines 59-63); receiving response information from the plural remote units, said response information being in relation to said command information and measurements performed on the traffic wireless network via the plural remote units (see col. 5 line 36 through col. 6 line 4); generating a measurement result based on said response information (see col. 14 lines 1939).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

17. Claims 130-133, 135, and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 130, Nilsen discloses a system for assessing data quality of service on a wireless network (see abstract), the system comprising: means for obtaining measurements (MTU), at a statistically significant number of locations, of a performance parameter on a wireless network (see col. 3 lines 44-53); and means for consolidating (FE, DBMS, CeNAS in Fig. 1) information indicative of the measurements obtained by the means for obtaining (see col. 3 line 66 through col. 4 line 12); wherein the information consolidated by the means for consolidating provides an assessment of data quality of service on the wireless network (see col. 2 lines 12-26).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the

communication path or a node in one of the networks to ensure necessary quality of service.

As to claim 131, Nilsen further discloses that the means for obtaining measurements comprises plural remote units (MTU in Fig. 1).

As to claims 132-133, Nilsen further discloses that a portion or substantially all of the plural remote units are mobile units (see col. 3 lines 50-53).

As to claim 135, Nilsen further discloses that the means for consolidating comprises a back end processor (CeNAS) (see col. 13 line 46 through col. 14 line 7).

As to claim 136, Nilsen further discloses that the means for obtaining measurements performs the function of obtaining measurements in response to command information received from the means for consolidating (see col. 4 lines 59-63 and col. 5 line 60 through col. 6 line 4).

18. Claims 137 and 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claims 137-138, Nilsen discloses a device (MTU) for obtaining measurements indicative of data quality of service for a wireless network providing data service, the device comprising: a control link modem (built in modem - see col. 20 line 9) providing communications with a back end processor; a traffic modem (test mobile) providing communications via the wireless network; a location unit providing position information (see col. 6 lines 13-15, and col. 19 line 63 through col. 20 line 15); and a computer, the computer comprising: a processor (see col. 20 line 6) in communication

with the control link modem and the traffic modem, and being connected to the location unit; and a memory, connected to the processor, bearing software instructions (see col. 6 lines 1518, col. 12 lines 6-13) adapted to enable the computer to perform the steps o£ receiving command information from the back end processor (see col. 5 line 64); receiving test traffic over the wireless network (see col. 12 lines 44-48) sending test traffic over the wireless network based on the command information received from the back end processor (see col. 5 line 67, col. 12 lines 25-29); receiving response traffic over the wireless network in reply to the test traffic (see col. 12 lines 44-48); recording measurement information comprising information regarding the test traffic, the response traffic, and location information contemporaneous with the step of receiving response traffic or test traffic (see col. 12 line 58 through col. 13 line 20, col. 6 line 3); sending the recorded measurement information to the back end processor (see col. 6 line 4).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data

communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

19. Claims 139 and 140 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Feder.

As to claim 139-140, Nilsen discloses a device (MTU) for obtaining measurements indicative of data quality of service for a wireless network providing data service, the device comprising: a modem (built in modem- see col. 20 line 9) providing communications with a back end processor and providing communications via the wireless network; a location unit providing position information (see col. 6 lines 13-15, and col. 19 line 63 through col. 20 line 15); and a computer, the computer comprising: a processor (see col. 20 line 6) in communication with the control link modem and the traffic modem, and being connected to the location unit; and a memory, connected to the processor, bearing software instructions (see col. 6 lines 1518, col. 12 lines 6-13) adapted to enable the computer to perform the steps of: receiving command information from the back end processor (see col. 5 line 64); receiving test traffic over the wireless network (see col. 12 lines 14-48); sending test traffic over the wireless network based on the command information received from the back end processor (see col. 5 line 67, col. 12 lines 25-29); receiving response traffic over the wireless network in reply to the test traffic (see col. 12 lines 44-48); recording measurement information comprising

information regarding the test traffic, the response traffic, and location information contemporaneous with the step of receiving response traffic or test traffic (see col. 12 line 58 through col. 13 line 20, col. 6 line 3); sending the recorded measurement information to the back end processor (see col. 6 line 4).

What Nilsen does not specifically disclose is that the data quality of service is measured on a communication path between a first node in a traffic wireless network and a second node in a data network. However, Feder teaches this limitation.

Feder discloses a method and apparatus for selecting an access point in a wireless network comprising measuring quality of service on a communication path between a traffic wireless network and a node in a data network [col. 2: lines 36-50].

Nilsen and Feder are combinable because they are from the same field of endeavor, that is, measuring quality of service in communication networks. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Nilsen to include Feder and Nilsen suggests monitoring telephone networks and data communication networks [abstract]. As it is known to wirelessly communicate between data networks and wireless networks, it would have been obvious to monitor the communication path or a node in one of the networks to ensure necessary quality of service.

20. Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Kikinis (U.S. Patent Application Publication Number 2002/0015398).

Nilsen discloses that said sending and receiving steps use a wireless link and that the back end processor is part of a LAN (see col. 8 lines 10-20). However, Nilsen fails to explicitly recite that said remote unit comprises a wireless LAN device for communicating with said back end processor.

In an analogous art, Kikinis discloses a system for measuring data quality of service (see abstract) wherein a remote unit (100-600 in Fig. 1) comprises a wireless LAN device for communicating in a network (see paragraph 77).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote unit to include a wireless LAN device for communicating with said back end processor. One of ordinary skill in the art would have been motivated to make this modification in order to broaden the applicability of Nilsen's system to include wireless LAN's.

21. Claim 119 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen and Feder in view of Kikinis (U.S. Patent Application Publication Number 2002/0015398).

Nilsen discloses that said sending and receiving steps use a wireless link and that the back end processor is part of a LAN (see col. 8 lines 10-20). However, Nilsen and Feder fail to explicitly recite that said remote unit comprises a wireless LAN device for communicating with said back end processor.

In an analogous art, Kikinis discloses a system for measuring data quality of service (see abstract) wherein a remote unit (100-600 in Fig. 1) comprises a wireless LAN device for communicating in a network (see paragraph 77).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote unit to include a wireless LAN device for communicating with said back end processor. One of ordinary skill in the art would have been motivated to make this modification in order to broaden the applicability of Nilsen's system to include wireless LAN's.

22. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Barringer (U.S. Patent Number 5675371).

Nilsen is silent as to what particular power supply is used in the remote units. In an analogous art, Barringer discloses remote units having battery backup.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote units to include battery backup in order to extend the life of the power supply.

23. Claim 117 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen and Feder in view of Barringer (U.S. Patent Number 5675371).

Nilsen is silent as to what particular power supply is used in the remote units. In an analogous art, Barringer discloses remote units having battery backup.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote units to include battery backup in order to extend the life of the power supply.

24. Claims 40, 52, 74, 82 and 84 are rejected under 35 U. S. C. 103 (a) as being unpatentable over Nilsen in view of Sant et al. (U.S. Patent Number 6169896).

As to claim 40, Nilsen fails to explicitly recite that said back end processor includes a test traffic generator for generating test traffic for said plurality of remote units.

In an analogous art, Sant discloses, in figure 3 a similar system wherein a back end processor (30) includes a test traffic generator for generating test traffic for a remote unit (see col. 5 lines 31-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's back end processor to include a test traffic generator. One of ordinary skill in the art would have been motivated to make this modification in order to provide control over the standard for comparing various measurements.

As to claim 52, Nilsen discloses that the MTU comprises means for implementing a wired modem (serial line and PCMCIA disk - see col. 20 lines 5-15).

However, Nilsen fails to explicitly recite that said control link modem is a wired modem.

In an analogous art, Sant discloses, in Figure 3, a similar system for evaluating quality of service wherein the control link modem for communicating with a back end processor (20) is a conventional wired modem (24) (see col. 4 lines 60-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control link modem to be a wired modem, as taught by Sant. One of ordinary skill in the art would have been motivated to make this modification because wired modems can transfer large quantities of data much faster than wireless modems.

As to claim 74, Nilsen fails to explicitly recite that each of said plurality of remote units includes a plurality of traffic modems.

In an analogous art, Sant discloses, in Figure 2, a similar system for evaluating quality of service wherein the remote unit includes a plurality of traffic modems (12a and 12) for performing measurements on at least one traffic wireless network.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote units to include a plurality of traffic modems, as taught by Sant. One of ordinary skill in the art would have been motivated to make this modification in order to generate a side-by-side comparison of various networks' performance (see col. 2 line 66 through col. 3 line 6 of Sant).

As to claims 82 and 84, Nilsen fails to explicitly recite that at least one or substantially all of the remote units in a geographic area are stationary.

In an analogous art Sant et al. discloses a similar system for evaluating quality of service wherein the remote units are fixed or stationary (see col. 7 lines 41-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote units to be stationary, as taught by Sant et al. One of ordinary skill in the art would have been motivated to make this modification in order to broaden the applicability to various other wireless networks such as wireless local loop.

25. Claims 122 and 134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen and Feder in view of Sant.

As to claims 122 and 134, Nilsen fails to explicitly recite that at least one or substantially all of the remote units in a geographic area are stationary.

In an analogous art Sant et al. discloses a similar system for evaluating quality of service wherein the remote units are fixed or stationary (see col. 7 lines 41-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's remote units to be stationary, as taught by Sant et al. One of ordinary skill in the art would have been motivated to make this modification in order to broaden the applicability to various other wireless networks such as wireless local loop.

26. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen in view of Gulledge (U.S. Patent Number 5644623).

Nilsen discloses that said control unit is a micro computer (see col. 6 lines 13-15) and that making the remote unit suitably small is desirable (see col. 6 lines 18-21). However, Nilsen fails to explicitly recite that the control unit is a single board computer.

In an analogous art, Gulledge discloses, in Figures 1 and 2, a similar system having remote units (I in Fig. 1) comprising control units (9 in Fig. 2) wherein, said control unit is a single board computer (see col. 5 lines 47-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control unit to be a single board computer, as taught by Gulledge. One of ordinary skill in the art would have been motivated to make this modification in order to make the control unit smaller.

27. Claim 91 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nilsen and Feder in view of Gulledge (U.S. Patent Number 5644623).

Nilsen discloses that said control unit is a micro computer (see col. 6 lines 13-15) and that making the remote unit suitably small is desirable (see col. 6 lines 18-21). However, Nilsen fails to explicitly recite that the control unit is a single board computer.

In an analogous art, Gulledge discloses, in Figures 1 and 2, a similar system having remote units (I in Fig. 1) comprising control units (9 in Fig. 2) wherein, said control unit is a single board computer (see col. 5 lines 47-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nilsen's control unit to be a single board computer, as

taught by Gulledge. One of ordinary skill in the art would have been motivated to make this modification in order to make the control unit smaller.

Response to Arguments

28. Applicant's arguments with respect to claims 1-140and 144-155 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martin, US Patent Number 6,154,776, discloses quality of service allocation on a network.

Kalliokulju et al., US Patent Number 6,385,451, disclose handover between mobile communication networks.

Willrett, US Patent Number 6,430,397, discloses measuring the transmission quality in cells of mobile radio networks.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erika A. Gary whose telephone number is 703-308-0123. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive Arlington, VA., Sixth Floor (Receptionist).

EAG
February 8, 2004

ERIKA GARY
PATENT EXAMINER

Erika Gary
Primary Examiner